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CROP PRODUCTION NEWS

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PRODUCTION

Editor's Comments

By Faye Dokken-Bouchard, PAg, Crops Branch

This is our last edition of the Crop Production News (CPN) for 2010. Hopefully we will continue to have improved harvesting weather as the growing season wraps up.

I would very much appreciate it if you could let us know how we did in 2010, and what topics you would like to see included in the 2011 CPN. Please send us your feedback. Is the CPN meeting your information needs for crop pest and production issues? Please fill out this short questionnaire and return it by copying and e-mailing it to: faye.dokken-bouchard@gov.sk.ca; or by printing and faxing it to (306) 787-0428.

What article topics were most beneficial in the 2010 Crop Production News?

<input type="checkbox"/> Provincial Crop Protection Lab updates	<input type="checkbox"/> Soil/fertility issues
<input type="checkbox"/> Agriculture Knowledge Centre updates	<input type="checkbox"/> Organic crop updates
<input type="checkbox"/> Insect updates, surveys and forecasts	<input type="checkbox"/> Forage production
<input type="checkbox"/> Plant disease updates	<input type="checkbox"/> Pulse/Cereal/ Oilseed production
<input type="checkbox"/> Vertebrate pest control and cautions	<input type="checkbox"/> New crops/Horticulture crops
<input type="checkbox"/> Pesticide updates	<input type="checkbox"/> Who's Who (specialists' biographies)
<input type="checkbox"/> Field Days/Events	<input type="checkbox"/> Other: _____

What crop production/pest issue information should we provide next year?

Thank you for your feedback and your participation in the 2010 Crop Production News!

Saskatchewan Agriculture's *Crop Report* provides details about harvest progress across the province. Visit the website at www.agriculture.gov.sk.ca/Crop-Report.

NOTE: Throughout this document, you will see that some publications are in blue font and underlined, indicating links to website information. If you are reading this on your computer screen, click your cursor on the link to take you directly to the website. ☺

Crop Production News is a bi-weekly publication prepared primarily by provincial specialists with the Crops Branch and Regional Services Branch of the Saskatchewan Ministry of Agriculture. It is a compilation of articles related to entomology, plant pathology, weed science, soils and agronomy issues.

Please do not use any of these articles for any other purpose without first asking the author's permission.

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Crop Protection Laboratory Update

By Philip Northover, AAg, Supervisor, Crop Protection Laboratory

Submissions of weeds, diseases and insects have subsided in the past two weeks, but the lab is busy processing cereal samples from the fusarium head blight (FHB) survey.

Diseases

Samples that have been diagnosed with diseases/disorders in the past two weeks include:

- Wheat: stagospore glume blotch; FHB; sharp eyespot (*Rhizoctonia*); nigrospora node rot
- Oats: covered smut
- Peas: fusarium root rot; mycosphaerella blight
- Lentils: stemphylium blight
- Caraway: ascochyta leaf blight
- Canola: alternaria leaf and pod spot
- Poplar: leaf rust
- Elm: black spot
- Tomato and potato: late blight

Weed/Plant Identification:

Weed samples identified in the past two weeks include three species with a reputation for their aggressive nature: salt cedar (*Tamarix ramosissima*), Himalayan balsam (*Impatiens glandiflora*), and purple loosestrife (*Lythrum salicaria*).

Three relatively frequent submissions to the lab were recognized as: foxtail barley (*Hordeum jubatum*), willowherb (*Epilobium ciliatum*), and Pennsylvania pellitory (*Parietaria pensylvanica*).

Less common weeds that were submitted recently include: marsh elder (*Iva xanthifolia*) and tall lungwort (*Mertensia paniculata*).

An unusual submission was witches butter (a species of *Nostoc* – a blue green algae), which was found colonizing a lawn. This can happen in areas with excess moisture.

Insects

Insect submissions were relatively low this year, likely due to the weather conditions. On spruce, pine needle scale (*Chionaspis pinifoliae*) was a more common lab submission.

Dutch Elm Disease

Dutch elm disease (DED) samples typically drop off at the end of September, as the leaves are falling. Of 263 DED submissions submitted this year, 135 have now been diagnosed with DED and 25 with dothiorella wilt. Sample numbers were lower this year than last year, and the proportion of samples with DED (about 51 per cent of samples) was less than the 60 per cent positive samples last year.

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Crop Protection Laboratory Update

(Continued from page 2)

Winter 2010-11

While the growing season is coming to a close, there is still a lot of work to be done at the lab through the fall and winter. Work will continue on the FHB survey on barley and wheat, herbicide resistance and bee parasite work will be conducted.

Next year, the current submission form for the lab will be replaced with forms specific to each test requested. Individual herbicide resistance, disease, plant identification and insect forms will be available on the website in the upcoming months.

Also, if you have a few minutes to spare, I would encourage you to learn the best ways to submit samples by watching the "[How to Submit Weed Samples](#)" web video and the soon to be released sequel—"How to Submit a Disease Sample" on our web page at www.agriculture.gov.sk.ca. ☀



For information about submitting samples to
Saskatchewan Agriculture's Crop Protection Lab,
go to www.agriculture.gov.sk.ca (Programs and
Services > Crop Protection Lab Services); or
phone (306) 787-8130.

Agriculture Knowledge Centre Update

By Brent Flaten, PAg, Integrated Pest Management Specialist

The majority of calls this past week have been topics related to frost, late development of crops and harvest. A list of Information Sources for Dealing with Excess Moisture, which includes some answers to the questions that have been raised, can be found on the Saskatchewan Agriculture website.

General frosts across the province prompted many inquiries about assessing or predicting frost damage on crops, whether to swath or leave crop standing, whether it was still beneficial to use either glyphosate or Reglone to dry down crop after frosts, and whether frost can cause nitrate issues in crop seed. Forage inquiries included discussions on nitrate accumulation in legumes or perennial grasses versus annual forages cut for bales or swath grazing. More information on Frost and Nitrates can be found on the Saskatchewan Agriculture website.

Considering how wet the fields are, there have been questions on aerating higher moisture grain expected to be harvested in the next few weeks. Producers are reporting sprouting in crops such as lentils, chickpeas and canola. Some crops harvested this fall for a seed source in 2011 will have high levels of seed-borne diseases. In these cases, producers want to know what the limits are for using as seed and what seed treatments could be used next spring. For more information on seed-borne diseases of cereals and pulses, visit the Saskatchewan Agriculture website and search “Seed-Borne Diseases”.

Weed control inquiries to the Agriculture Knowledge Centre (AKC) included questions about controlling perennials on unseeded fields and considerations for using soil residual herbicides this fall in those fields. Actively growing weeds are necessary for good control. Questions were also raised about assessing frost damage to perennial weeds when considering pre-harvest glyphosate. Recent warm dry weather has helped in assessing frost damage, as cool wet weather following frosts can delay the ability to make a proper assessment.

There have been discussions on whether to split-apply fertilizer (fall and spring) for winter wheat or put it all down at the time of seeding. Research studies have shown that all the required nitrogen fertilizer can be applied at the time of seeding winter wheat if properly placed away from the seed. Only in cases where there is a high potential for water-logged soils where nitrogen is lost due to denitrification would it be beneficial to surface apply some nitrogen in the spring. For more information on other considerations in winter wheat, please refer to articles in previous editions of the 2010 Crop Production News: *Nutrient Management Considerations for Winter Wheat on Unseeded Fields* (August 20); *Planting Winter Wheat on Unseeded Acres* (June 24); *Spring Considerations for Winter Wheat Production* (May 13); or search “winter wheat” on the Saskatchewan Agriculture website.

To contact the AKC, call toll-free in Saskatchewan at 1-866-457-2377. ☀

Where is the Nitrogen after a Wet Year?

By Ken Panchuk, PAg, Provincial Specialist, Soils

During a more normal prairie year, based on previous years of fall soil testing, one would be able to estimate how much residual nitrogen there was and where it was located in the rooting depth. But not this year. It even has the soil scientists who are studying nitrous oxide emissions baffled. With saturated soils one would have expected large nitrous oxide fluxes, indicating the loss of nitrate nitrogen by denitrification under prolonged saturated soil conditions. However, the nitrous oxide emissions weren't as high as expected. It's going to take a while before the 2010 nitrogen story can be put together.

Some late-August soil tests indicated that there was little nitrate-nitrogen in the top six inches. Did the nitrogen denitrify – or did it leach lower in the rooting zone, and if so, how deep did it leach? How much nitrogen is at lower depths; can it be recovered by crop selection in 2011? These are the questions that need to be answered after a wet growing season so that nutrient plans can be made for the 2011 growing season.

For the most part, we know how to manage the non-mobile nutrients phosphorus and potassium. I think the focus is going to be on a basic soil test for the upper depth, plus a nitrogen and sulphur test for the lower depths in increments of: zero to six; six to 12; 12 to 24; and maybe even 24 to 36 inches. It is important to remember that wet soil samples should be sent to the lab the same day or no later than next day. Once the soils cool to below 10 C and harvest is out of the way, getting a truly representative sample for each field is still going to be a challenge. Most fields are saturated deeper than you can push the moisture probe, therefore extracting soil cores to two and three-foot depths is not going to be easy, especially on clay-textured soils. Most automated soil sampling units only go six to 12 inch depths, which means you have to manually core the lower depths.

Root simulator technology will also help you understand what your mineralization capability is going to be for each field. This is valuable because mineralization involves a slow release source of nitrogen and other nutrients during the growing season.

We have the tools available, but first we need to put the pieces of the puzzle together so we can make an informed nutrient plan for each field in 2011. The industry 4R (four rights) nitrogen stewardship plan relies on these tools for determining the right rate of nitrogen, along with the right fertilizer source, right timing, and right placement. ☺

Wet Weather Stalls Harvest and Increases Crop Quality Concerns

By Chantal Jacobs, PAg, Provincial Specialist, Organic Crops

Dale Risula, PAg, Provincial Specialist, Special Crops

Venkata Vakulabharanam, PAg, Provincial Specialist, Oilseed Crops

Blaine Recksiedler, PAg, Provincial Specialist, Cereal Crops

Connie Achtymichuk, PAg, Provincial Specialist, Vegetable Crops

The 2010 crop season continues to baffle farmers as the wet weather persisted throughout September. From a record number of unseeded acres this spring, to late crops hit by frost, 2010 has been a year to remember. All crop commodities including cereals, oilseeds, pulses and vegetables have been impacted by the excess moisture conditions. Delayed harvest and quality issues are a common concern across Saskatchewan.

Cereals

By mid-September, cereal crop harvest progress remained in the single digits, and quality concerns included sprouting, growth of sooty moulds and frost.

- Barley harvest is most advanced, with the provincial average around 15 per cent, but high moisture has caused sprouting issues. The 2009 barley crop was high quality for malting, thus there may be challenges selling lower quality 2010 barley crop for malt.
- Spring wheat harvest was approximately seven per cent (ranging from two to 15 per cent) complete by mid-September, but progress stalled in the wet weather conditions. Sooty moulds are widespread, along with some sprouting. Observed levels of fusarium head blight in eastern Saskatchewan are higher than in recent years, and the disease has even appeared in west-central Saskatchewan. Wheat midge damage and ergot have also been reported, but generally at lower levels that will not cause downgrading. Final damage assessments will be made after harvest is complete.
- Durum harvest progress is slow and early samples show *Fusarium* and mould issues. The 2009 durum crop was significantly larger and of higher quality than 2010.
- Early oat harvest in eastern Manitoba was of reasonable quality. However, the Saskatchewan crop is likely to be affected by moulds, sprouting and discolouration issues given the wet conditions. The oat ending stocks from 2008 and 2009 were high, thus marketing low-quality oats this year may be challenging for producers.
- Canaryseed harvest is also slow, but it can withstand weathering relatively well. Note that tough straw can make harvesting canaryseed quite difficult.

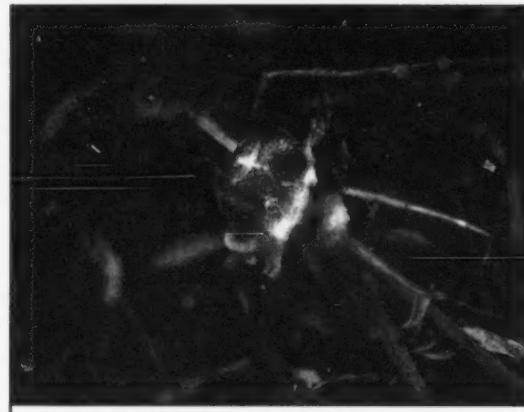


Figure 1: Sclerotinia on lentil pods.

Source: Saskatchewan Agriculture

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Wet Weather Stalls Harvest and Increases Crop Quality Concerns

(Continued from page 6)

Oilseeds

According to the Crop Report from September 21, 2010, only 26 per cent of the mustard, 14 per cent of the canola and none of the flax and sunflower crops were harvested. Warm weather has improved the situation and more sunny days are forecast. The silver lining for growers that are able to harvest is that commodity prices are increasing compared to last spring.

When producers have different oilseed crops on their farm, they must decide which one to harvest first based on which crop will withstand conditions better for late winter or early spring harvest.

- Producers should make every effort to harvest canola before winter (Canola Council of Canada), to avoid development of moulds and free fatty acid build-up in the oil, which can downgrade canola to sample. Freeze-thaw cycles will hasten pod shattering, and among Brassica species, yellow mustard is most tolerant to pod shattering followed by brown/oriental mustard. Downgrading is always a possibility when harvesting canola and mustard in the spring.
- Flax withstands winter conditions better than canola as bolls are less susceptible to shattering. If bolls begin dying while the stalks are still green, swathing may be the best option to reduce wrapping issues during combining. Exposure to longer freeze-thaw cycles may cause flax seed discoloration and reduce its suitability for the human food market.
- In Saskatchewan, sunflowers are typically harvested in late fall. Freezing allows for the heads to dry; however, over-wintering will lead to mould and quality issues.

Proper oilseed drying and storage is critical to maintain crop quality, as high oil content in the seed can result in a hot spot in the grain, which can quickly spread to the entire bin. Oilseed crops store well at nine to 10 per cent moisture content. Following wet harvest conditions, it is important to monitor bins regularly. The effectiveness of natural air grain drying depends on air temperature and relative humidity. If necessary, heated air drying can be used, but remember to use proper guidelines as the air temperature for a seed crop is much lower than a commercial crop.

Pulses

The majority of dry peas are now harvested in Saskatchewan. Peas are generally seeded and harvested first, so this may provide some reprieve from the effects of the excess moisture experienced by all crops this year. Excess precipitation causes problems with maturity, bleaching and related problems like earth tag degradation. Earth tag and bleaching issues are more associated with green peas than yellows, and Saskatchewan producers grow mostly yellow peas. The silver lining for pea growers is that there seems to be an escalating demand and price for feed peas in Europe, and Canada will likely have more feed quality peas than usual this year. There is also potential for an increase in North American domestic feed pea use. Strong feed pea prices could help minimize marketing problems caused by yield and quality shortfalls.

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Wet Weather Stalls Harvest and Increases Crop Quality Concerns

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Lentil acreage was up in 2010 with estimates of around three million acres. However, much of the crop has been adversely affected by excess rain and harvested acres are expected to be significantly reduced and variable across the province. Initial yield estimates were higher than average. But persistent rainfall has hampered those initial predictions. Significant disease-related problems are expected to have negatively affected crop yield and quality, and reports of sprouted lentils have added to the crop quality concerns. Sprouted lentils are not acceptable to the processing industry so they will likely go into non-traditional feed markets. The yield and quality of the United States (U.S.) lentil crop was high this year. However, their overall production is significantly lower than Canada and favours green lentils. Lentil production shortfalls are going to put upward pressure on prices, with a greater influence on red lentils as green lentil production in the U.S. could offset losses in Canada.

Vegetables

The vegetable sector also found the 2010 crop year difficult. Some market gardeners battled with excess mud to pick enough produce for market days, while others were open fewer hours or days compared to previous years. Crops were lost to flooding or disease outbreaks, including late blight in potato and tomato crops. Low temperatures negatively affected crops that are more sensitive and is expected to have a significant impact on Saskatchewan's wholesale pumpkin markets. On the bright side, an emergency use registration has been granted for Scholar 50WP fungicide for post-harvest control of white mould in carrots.

Potato harvest and storage is expected to be a challenge this year. The right amount of soil moisture actually makes potato harvesting easier, as the dirt clods will break up when the potatoes are lifted. However, too much moisture causes dirt to stick to the potatoes, which can increase the incidence of disease such as silver scurf and decrease airflow in storage. The 2010 potato crop will inevitably have some tubers affected with late blight, and it will be important to have good air movement in storage to dry affected tubers and eliminate hot spots. The market forecast looks positive in 2010, so harvesting and maintaining potatoes in good condition should result in good returns.

Conclusion

Weather is unpredictable and has a significant impact on crop quality. Growers that take steps towards good harvest management will reduce the negative impact that wet weather has on grain quality and hopefully find an increase in returns in upcoming markets. ☀

Management of Stored Grain

By Scott Hartley, PAg, Provincial Specialist, Insect / Vertebrate Pests

Effective management of stored grain is always an important aspect in production systems. This year, with a later harvest, there is the potential of green or moist material going into storage facilities. Therefore, efficient management and monitoring procedures will be especially critical to avoid issues related to grain heating, mould and insect infestations in order to maintain optimum value of the commodity.

The Canadian Grain Commission has noted that insect infestations are most commonly associated with residual grain particles or dust in or around storage facilities. Remove vegetation or spilled grain that are attractive to insect or rodent pests around storage facilities. Start with clean grain handling equipment such as augers and trucks, as well as bins. Sweep or vacuum to remove any residues present before any commodity is put into storage. If cereal grains are to be stored, the bin, including cracks and crevices, can be treated with an insecticide such as malathion. However, it is important to note that you must wait at least six months before storing canola in facilities treated with malathion. Oilseeds will absorb sufficient quantity of the insecticide to exceed minimum residue limits (MRLs) allowed for export to some countries.

Preferably grain should be dry before putting into storage but it may be necessary to cool and dry the grain once it is in the bin. For long-term storage, grain should be cooled to below 15 C as soon as possible. Drying and cooling the grain will prevent heating and fungal growth. Cool temperatures also prevent insect growth and reproduction. Certain insects (fungus feeders) do not feed on the grain itself, but on fungal growth on the seed. Although not considered primary insect pests in stored grain, the presence of these insects will affect marketing of the commodity.

For more information, contact:

Agriculture Knowledge Centre toll free in Saskatchewan at 1-866-457-2377

For more detailed information please refer to the Saskatchewan Agriculture fact sheet:

<http://www.agriculture.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=2127,343,185,81,1,Documents&MediaID=6001&Filename=Insects+and+Mould+in+Stored+Grain++Printer+Friendly.pdf>

Also refer to the Canadian Grain Commission website for information on managing stored grain – maintaining quality and managing insect infestations:

<http://www.grainscanada.gc.ca/storage-entrepose/mqsgm-mgqge-eng.htm> ☈

Grain Drying Tips

By Kim Stonehouse, AAg, Regional Crop Specialist, Tisdale

A lot of the grains harvested in September were tough, if not damp. Without a long dry spell this trend could continue. This means that in order to store these grains some form of drying is going to be required.

Natural air grain drying systems can be used to dry grain for long-term storage if certain conditions are met. The first condition is the air flow rate. For drying to occur the system must be capable of producing an air flow of at least one cubic foot per minute per bushel of grain. Air flows less than this are considered to be aeration and will not dry the grain to any extent.

Ambient air temperature will control the amount of drying that will take place with natural air grain drying. For drying to occur at all, the average daily air temperature must be at least 5 C. However, it is generally recommended that the temperature be at least 10 C to achieve any reasonable rate of drying.

The relative humidity of the air passing through the grain will control the transfer of moisture from grain to air until equilibrium is reached. Once this equilibrium is reached, the grain will not dry any further. For example, operating a natural air grain dryer above 70 per cent relative humidity will not reduce the moisture content of cereals and oilseeds sufficiently. Supplemental heat may be used to lower the relative humidity of incoming air, but keep in mind that the recommended maximum rise in air temperature for natural air drying without any method of stirring the grain is 10 C.

The time it takes to dry grain using a natural air grain drying system will depend on the fan size, depth of grain, air temperature, relative humidity and added heat. These systems are slower than heated air grain dryers and depending on conditions; actual drying of the grain may not be possible during the late fall and winter months.

Heated air grain dryers will dry grain under virtually any conditions. However, drying costs will increase as the ambient air temperature drops.

When operating a heated air drying system, maximum drying temperatures need to be observed. Excessive temperatures can damage the grain, reduce germination and milling quality or potentially cause a fire in the dryer.

As well, moisture rebound of the grain as it cools can lead to grain spoilage if not properly addressed. A rule of thumb is to over-dry 0.1 % for every full percentage point that the grain is dried. It is also important to note that the grain must be cooled after drying to avoid spoilage. This can be done in the dryer or in bins equipped with fans.

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Grain Drying Tips

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With the wet harvest conditions being so widespread this year, it would be a good idea to do some grain drying homework to try and avoid large volumes of grain sitting in bins with no capacity to be dried in a timely manner. If you plan to purchase a dryer, check with suppliers on the availability and delivery times. If you have a propane dryer you might want look into the ability of suppliers to deliver this fuel to avoid the shortages we saw in 2009. If you plan to convert to natural gas, check with SaskEnergy on the cost and how long it will take to complete the conversion. As well, upgrades will have to be made to the dryer, which will have to be obtained from the manufacturer. If you plan to get your grain dried off-farm, check with local custom dryers to see what their capacity is and expected number of clients to try and avoid a surprise later.

For more information on grain drying refer to [Grain Drying – FAQ's and Natural Air Grain Drying](#) on www.agriculture.gov.sk.ca or contact your local Saskatchewan Ministry of Agriculture regional office. ☺

Things That Worked This Year

Elaine Moats, PAg, Regional Crop Specialist, Weyburn

What a year we've been having! Across the province, farms have endured a rainy and far too wet seeding and growing season. Despite these challenges there actually are some very good crops out there. As we think about this season, it is worth considering some things that have worked from various perspectives around the province; even with the factors we have no control of, like the weather.

Across the province, timeliness of seeding was most important. Crops were generally pretty good where farmers were able to get started seeding early. How did they do it? A number of farmers said that what made the difference for them was being ready to seed, even though it was early. To complete their pre-seeding herbicide burned-off and free up the existing farm labour for seeding, some farmers hired a custom applicator in the spring.

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Figure 2: Ready to seed.
Source: Saskatchewan Agriculture

Things that Worked this Year

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New equipment such as high clearance sprayers are great but when they show up just in time for work it can be a tough learning curve for the operators. Farmers who spent time on the simulators back in the shop at the dealership in March found that it saved them down-time in the field.

Keeping the old seeding system wasn't always in the cards for some who purchased "new to you" seeding equipment that arrived during seeding. While it seemed early at the time, many farmers report much time lost while trying to match the new outfit to the existing tractor's plumbing or fixing and/or replacing various components. On the other side of the coin, as seeding progressed, some farmers assessed their field conditions and opted to use some older technology such as lighter weight, narrower drills, or fertilizer spreaders. It reminded me of the old saying "doing the job right is not as important as doing the right job".



Figure 3: Waiting to work down unseeded acres.
Source: Saskatchewan Agriculture

Another area that farmers emphasized was making effective use of the time afforded them by the wet weather. This may have meant putting some effort towards their farm business. The list includes bringing their books up-to-date, finalizing lease arrangements, business planning and restructuring. A number have applied for planning assistance through the Farm Business Development Initiative. Information on that program is available through the Ministry of Agriculture's Regional Farm Management Specialists.

Risk management is more than just insurance programs. Last fall many farmers had to learn how to deal with tough and damp grain, and a number of new grain driers and supplemental heating systems were acquired. While not as common in the southern grain growing areas as the north, the use of this equipment is growing as the capacity of the grain storage systems grows along with the farm size.

Hopefully the forecast for sun and warmer days will hold for an extended period and the rest of this year's crop will be harvested under better conditions than the start. Good luck with harvest. ☺

Poor Harvest Conditions May Lead to Feeding Challenges

By Michel Tremblay, PAg, Provincial Specialist, Forage Crops

Haying is an inexpensive and effective method of storing feed in low rainfall areas, where dry matter losses during haymaking and storage can be maintained at an acceptable level. Due to Saskatchewan's predominantly semi-arid climate, feed is largely stored as dry hay. Saskatchewan is a land of variation and extremes, and the 2010 growing season could hardly be described as semi-arid. Regular and significant rainfall events occurred throughout the growing season, making the harvest of good quality hay challenging to say the least.

A number of factors contributed to reduced hay quality. Most of the first cut was harvested significantly later than normal; some first cut fields were still standing in September. As forage matures, protein levels drop and fibre content increases. Wet weather following cutting increases the duration that plant tissues respire. When foliage dries, cellular respiration ceases. Respiration uses up energy present in the forage, so extended periods of respiration results in increased dry matter losses. Rain leaches soluble components from the hay. Sun bleaching is increased as hay lies in swath for extended periods, degrading pigments and vitamins. When hay lies wet, fungal organisms grow, further degrading palatability and feed value.

Hay can safely be baled at 15 per cent moisture in small square bales, 17 per cent in hard core round bales, and 19 per cent in soft core round bales. Exceeding these levels can result in spoilage of stored hay. Considering the volumes of hay baled tough this season, many growers will likely be faced with mouldy feed when the feeding season begins. With the wide array of hay quality in 2010, feed testing is particularly important. If the hay has heated (experienced elevated temperatures due to microbial degradation), the acid detergent insoluble nitrogen (ADIN) test is required for detection of heat damage. The ADIN test is not typically part of a general feed analysis and must be requested in addition to a standard feed test.

All feeds have moulds or fungus present on them. Normally the level of mould on feed is quite low. Mould growth increases when relatively high humidity is combined with heat. Certain types of moulds, when exposed to cool moist conditions, produce mycotoxins. Ingested mycotoxins, if passed on to the fetus, may cause abortions (aspergillosis). If not aborted, calves may have compromised immune systems, resulting in slow growth or health problems. Respiratory irritation and pneumonia may result from the inhalation of spores and dust created by moulds. Moulds result in feed quality deterioration, and reduced palatability. Low palatability reduces forage intake and therefore nutrient intake, reducing animal performance.

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Poor Harvest Conditions May Lead to Feeding Challenges

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Several strategies can be used when feeding mouldy forages to minimize potential problems. Limit feeding of mouldy hay to backgrounder/finisher calves and bulls and avoid feeding mouldy hay to pregnant cows due to risks associated with mycotoxins. Spread mouldy forages on the ground or run bales through a processor to blow off some of the mould spores, and allow livestock to be more selective of which plant parts they consume. Limit mouldy hay to 40 to 60 per cent of the ration by mixing mouldy hay with good quality forage. Supplement Vitamin A to avoid deficiencies associated with feeding mouldy hay for long periods.

Feeding mouldy hay will be a reality in 2010. Although feeding mouldy hay is certainly not a desirable situation, feed testing combined with some feeding techniques will minimize the negative effects of low quality feed. ♦

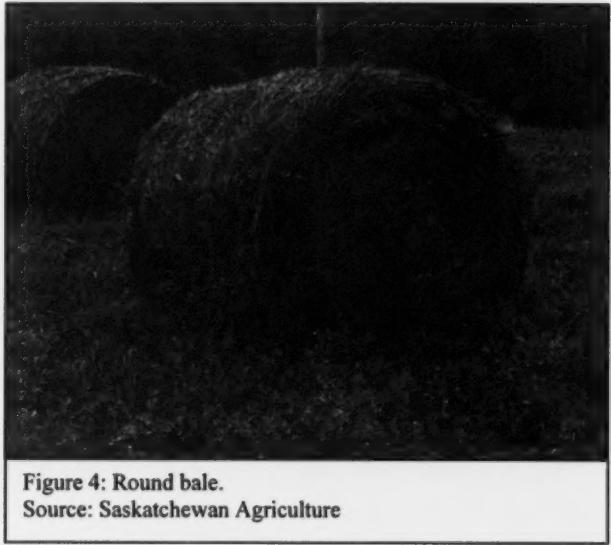


Figure 4: Round bale.
Source: Saskatchewan Agriculture

The *Crop Production News* is a publication of the Crops Branch, Saskatchewan Ministry of Agriculture.
Editor: Faye Dokken-Bouchard;
Phone: (306) 787-4671;
e-mail: faye.dokkenbouchard@gov.sk.ca